



US006063181A

**United States Patent** [19][11] **Patent Number:** **6,063,181****Böhm et al.**[45] **Date of Patent:** **May 16, 2000**

[54] **1,7-DISUBSTITUTED PERYLENE-3,4,9,10-TETRACARBOXYLIC ACIDS, THEIR DIANHYDRIDES AND DIIMIDES OF SAID ACIDS**

[75] Inventors: **Arno Böhm**, Mannheim; **Harald Arms**, Worms; **Georg Henning**; **Peter Blaschka**, both of Ludwigshafen, all of Germany

[73] Assignee: **BASF Aktiengesellschaft**, Ludwigshafen, Germany

[21] Appl. No.: **09/091,263**

[22] PCT Filed: **Dec. 11, 1996**

[86] PCT No.: **PCT/EP96/05525**

§ 371 Date: **Jun. 18, 1998**

§ 102(e) Date: **Jun. 18, 1998**

[87] PCT Pub. No.: **WO97/22608**

PCT Pub. Date: **Jun. 26, 1997**

[30] **Foreign Application Priority Data**

Dec. 18, 1995 [DE] Germany ..... 195 47 210

[51] **Int. Cl.<sup>7</sup>** ..... **C09B 3/14**; C07D 493/06

[52] **U.S. Cl.** ..... **106/493**; 549/232; 252/301.17; 252/301.32

[58] **Field of Search** ..... 549/232; 106/287.21, 106/493; 252/301.17, 301.32

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

5,677,417 10/1997 Muellen et al. .... 528/310

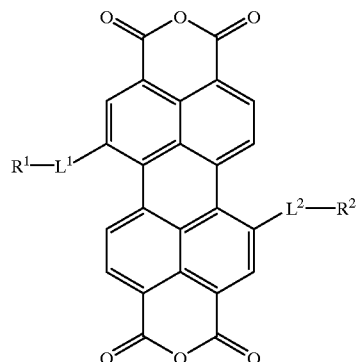
*Primary Examiner*—John Kight

*Assistant Examiner*—Charanjit S. Aulakh

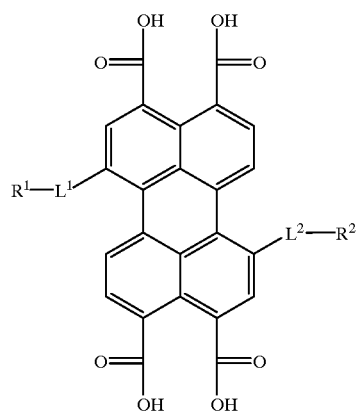
*Attorney, Agent, or Firm*—Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

[57] **ABSTRACT**

1,7-Disubstituted perylene-3,4,9,10-tetracarboxylic dianhydrides I and perylene-3,4,9,10-tetracarboxylic acids Ia



I



Ia

where

L<sup>1</sup>, L<sup>2</sup> independently of one another are 1,2-ethylene, 1,2-ethenylene and 1,2-ethynylene, and

R<sup>1</sup>, R<sup>2</sup> independently of one another are hydrogen or substituted or unsubstituted C<sub>1</sub>-C<sub>30</sub>-alkyl,

their preparation and use as pigments, laser dyes and precursors for preparing fluorescent dyes, polymeric colorants, pigments and pigment additives, and also 1,7-disubstituted perylene-3,4,9,10-tetracarboxylic diimides (VI) as their intermediates.

**11 Claims, No Drawings**